

**REMARKS**

Claims 1-4, 6, 9, 10, and 14-16 are currently pending, wherein Applicant proposes to add new claims 18-29. Applicant respectfully requests entry of the above-identified amendment and favorable reconsideration in view of the remarks presented herein below.

In paragraph 2 of the Office Action ("Action"), the Examiner rejects claims 1-4, 6, 9, 10, and 14-16 under 35 U.S.C. § 102(b) as allegedly being anticipated by European Patent Application Publication No. EP 0 800 781 to Sunstar Inc. ("Sunstar"). Applicant respectfully traverses this rejection.

In order to support a rejection under 35 U.S.C. § 102, the applied reference must teach each and every claimed element. In the present case, claims 1-4, 6, 9, 10, and 14-16 are not anticipated by Sunstar because Sunstar fails to disclose each and every claimed element as discussed below.

As discussed in Section 2131.03 of the MPEP, when the prior art discloses a range which touches or overlaps the claimed range, but no specific examples falling within the claimed range are disclosed, a case-by-case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." Furthermore, if the claimed range is directed to a narrow range, and the reference teaches a broad range, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims.

Sunstar discloses an interdental brush that includes, according to various embodiments, a steel wire having a diameter of 0.15 to 0.35 mm and containing nitrogen and a controlled amount

of manganese. The alloys disclosed in Sunstar are broadly divided into two defined groups according to their content of manganese: a first group with a manganese content of  $>2.5\%$  by weight (embodiments 1-7); and a second group with a manganese content of  $<2.5\%$  by weight. Furthermore, a subset of these embodiments discloses the use of austenitic steel, for example, embodiments 6-8 and 10. The percent by weight of nickel disclosed in these embodiments ranges from less than or not more than  $1.0\%$  (embodiments 6 and 7), to  $7.0$  to  $10.50\%$  (embodiments 8 and 10). Although the range (i.e., less than or not more than  $1.0\%$ ) by weight of nickel in embodiments 6 and 7 includes the claimed range of less than  $0.05\%$  by weight, the disclosed range is so broad as to not disclose the claimed narrow range with "sufficient specificity" to constitute an anticipation of the claims.

Tables 1 and 2 of the Sunstar reference disclose  $<1.0\%$  and specifically  $0.52\%$  Ni by weight, which is at least 10 times the claimed amount of less than  $0.05\%$  by weight. This, in combination with the fact that nickel is commonly accepted as being an important austenitic forming agent and is therefore responsible to a great extent for the formation of an austenitic structure in steels, would lead one skilled in the art to use the upper limit of the amount disclosed of nickel not to narrow the range as claimed. Starting from the disclosed nickel content of less than  $1\%$  by weight to  $0.52\%$  by weight, one skilled in the art would not consider to further decrease the amount of nickel, in particular not by a factor of 10 to the inventive nickel content of less than  $0.05\%$  by weight, in order to solve the problem of the present invention given that Sunstar is concerned with controlling the amount of manganese, not nickel.

In rejecting claim 1, the Examiner asserts that Sunstar discloses an interdental brush that includes an austenitic steel wire that includes less than  $0.05\%$  by weight nickel inasmuch as

embodiments 1-3 of Sunstar do not explicitly disclose nickel. This assertion is unfounded for the following reason.

Sunstar discloses that the steel in embodiments 1-3 includes *at least* the disclosed constituents, which is not equivalent to disclosing that the steel consists solely of the disclosed elements. This in combination with the fact that nickel is a well known austenitic forming agent, one skilled in the art would readily appreciate that the steel of embodiments 1-3 includes some undisclosed amount of nickel. Furthermore, in embodiments 1-6 of Sunstar do not explicitly list carbon as a constituent, however, carbon is well known as an essential constituent for steel.

Accordingly, independent claim 1 is not anticipated by Sunstar because Sunstar fails to explicitly disclose an austenitic steel with less than 0.05% by weight nickel as claimed. Claims 2-4, 6, 9, 10, and 14-16 variously depend from independent claim 1. Therefore, claims 2-4, 6, 9, 10, and 14-16 are patentable over Sunstar for at least those reasons presented above with respect to claim 1.

In paragraph 4 of the Action, the Examiner rejects claims 1-4, 6, 9, 10, and 14-16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sunstar. Applicant respectfully traverses this rejection.

In order to support a rejection under 35 U.S.C. § 103, the Examiner must establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some motivation to modify the cited references. Second, there must be a reasonable expectation of success. Finally, the modification must teach each and every claimed element. In the present case, claims 1-6 and 9-17 are not rendered unpatentable

over Sunstar for at least the reason that Sunstar fails to disclose each and every claimed element, as discussed below.

In rejecting claim 1, the Examiner appears to assert that even if Sunstar does not explicitly disclose austenitic steel comprising less than 0.05% nickel by weight, it would have been obvious to one skilled in the art to use a steel comprising less than 0.05% by weight nickel in view of the fact that Sunstar allegedly discloses using steel that includes zero to 1% nickel by weight. This assertion is unfounded for the following reasons.

First, as discussed above, the mere fact that Sunstar discloses and/or claims embodiments that do not specifically recite the inclusion of nickel does not necessarily require that these embodiments exclude nickel. (See discussion above.)

Second, the alloys disclosed in Sunstar are broadly divided into two defined groups according to their content of manganese: a first group with a manganese content of  $>2.5\%$  by weight; and a second group with a manganese content of  $<2.5\%$  by weight. Furthermore, Sunstar discloses that a subset of these embodiments includes austenitic steel with a percent by weight of nickel ranging from less than 1.0%, not more than 1.0%, to 7.0 to 10.50%. Although the range (i.e., less than or not more than 1.0%) by weight of Nickel in embodiments 6 and 7 includes the claimed range of less than 0.05% by weight, nowhere in Sunstar is there any specificity with regard to the claimed narrow range of less than 0.05%.

Tables 1 and 2 of the Sunstar reference disclose  $<1.0\%$  and specifically 0.52% Ni by weight, which is at least 10 times the claimed amount of less than 0.05% by weight. This, in combination with the fact that nickel is commonly accepted as being an important austenitic forming agent and is therefore responsible to a great extent for the formation of an austenitic

structure in steels, would lead one skilled in the art to use the upper limit of the disclosed nickel, not to narrow the range as claimed. Furthermore, starting from the disclosed nickel content of less than 1% by weight to 0.52% by weight, one skilled in the art would not consider further decreasing the amount of nickel, in particular not by a factor of 10 to the inventive nickel content of less than 0.05% by weight, in order to solve the problem of the present invention. To the contrary, Sunstar discloses controlling the content of manganese in the steel to achieve improved results, nowhere in Sunstar is there any suggestion of trying to eliminate nickel in order to achieve improved results. Accordingly, altering the amount of nickel would not have been an optimizing effort in view of Sunstar. Therefore, one skilled in the art would merely have been motivated to control the amount of manganese.

Accordingly, independent claim 1 is patentable over Sunstar for at least the reason that Sunstar fails to disclose or suggest an interdental brush comprising two wire sections formed of austenitic steel and having a diameter of 0.3 mm or less, wherein the austenitic steel includes less than 0.05% nickel by weight. Claims 2-4, 6, 9, 14, 15, and 16 variously depend from independent claim 1. Therefore, claims 2-4, 6, 9, 14, 15, and 16 are patentable over Sunstar for at least those reasons presented above with respect to claim 1. Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-4, 6, 7, 14, 15, and 16.

New claims 18-29 define an interdental brush that includes, *inter alia*, the elements of independent claim 1. In addition, these new claims further define that the austenitic steel contains the following alloying constituents: manganese, nitrogen, carbon, chromium, molybdenum, silicon, phosphorus, titanium, iron, and nickel. Accordingly, new claims 18-29 are patentable over Sunstar not only for those reasons presented above with respect to claim 1, but

also because Sunstar fails to disclose or suggest the use of an austenitic steel containing the alloying constituents as claimed.

The application is in condition for allowance. Notice of same is earnestly solicited. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Penny Caudle (Reg. No. 46,607) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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